Fig. 1

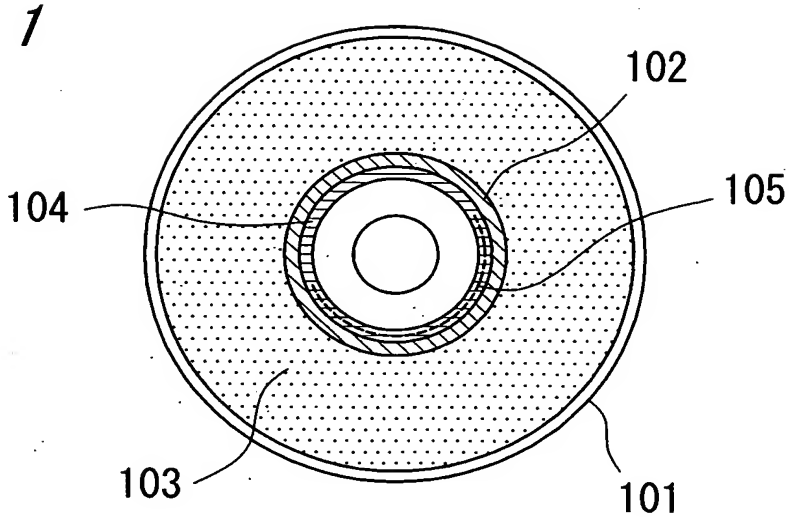


Fig. 2

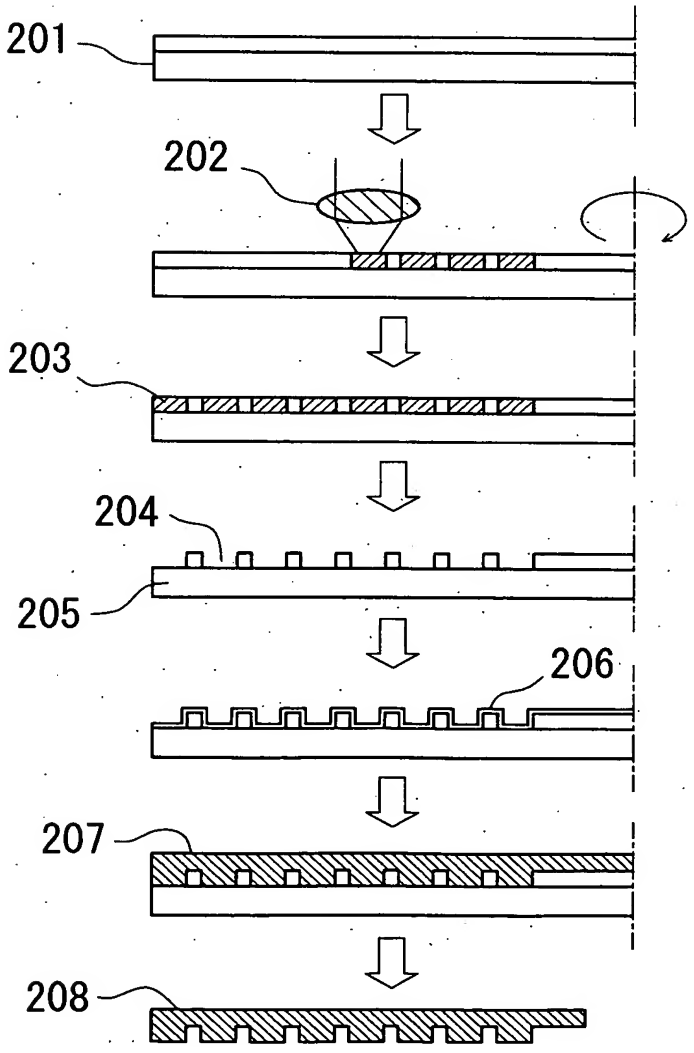


Fig. 3

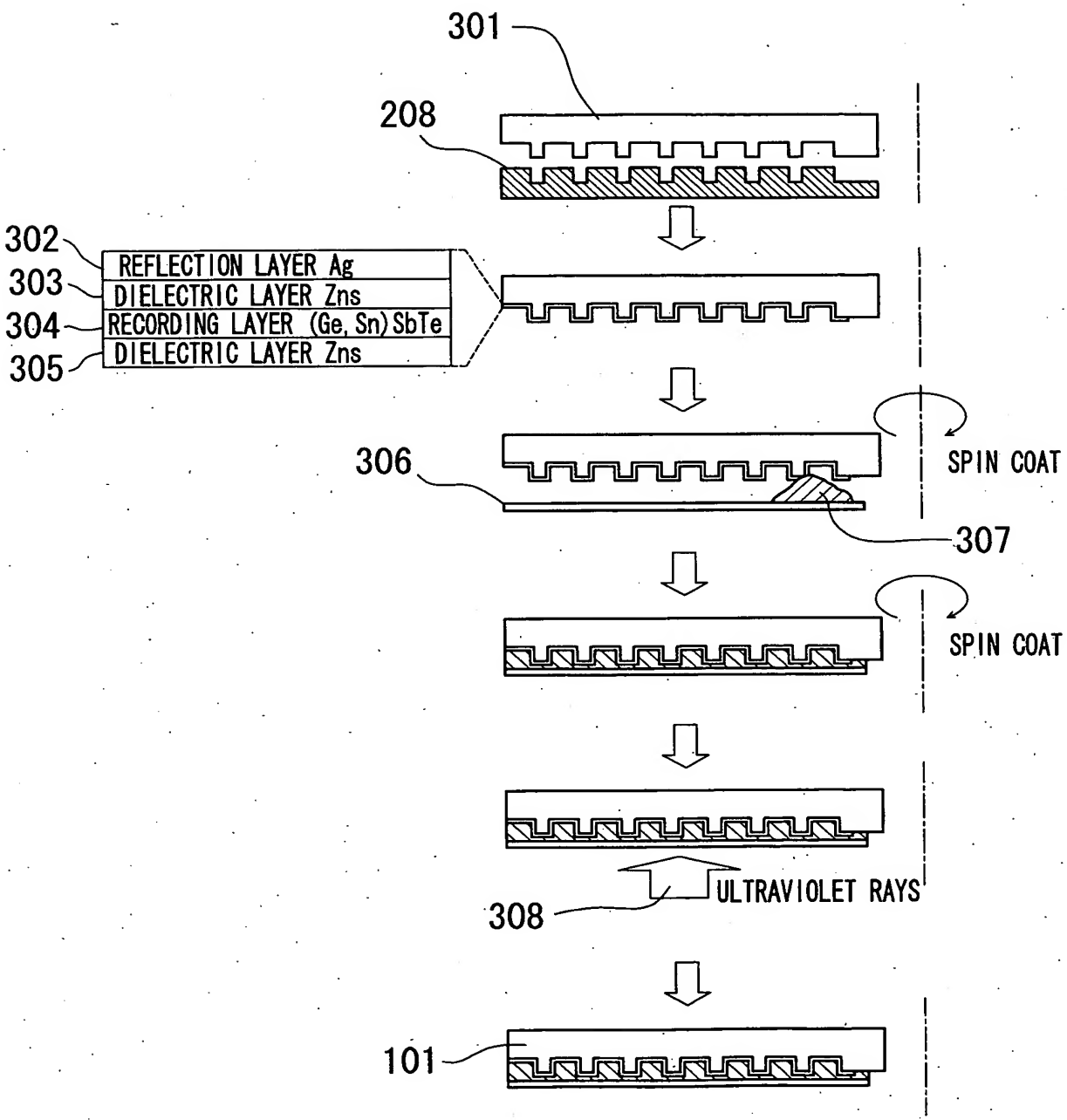

301
208
302
303
304
305
REFLECTION LAYER Ag
DIELECTRIC LAYER Zns
RECORDING LAYER (Ge, Sn)SbTe
DIELECTRIC LAYER Zns
306
SPIN COAT
307
SPIN COAT
ULTRAVIOLET RAYS
308
101

Fig. 4

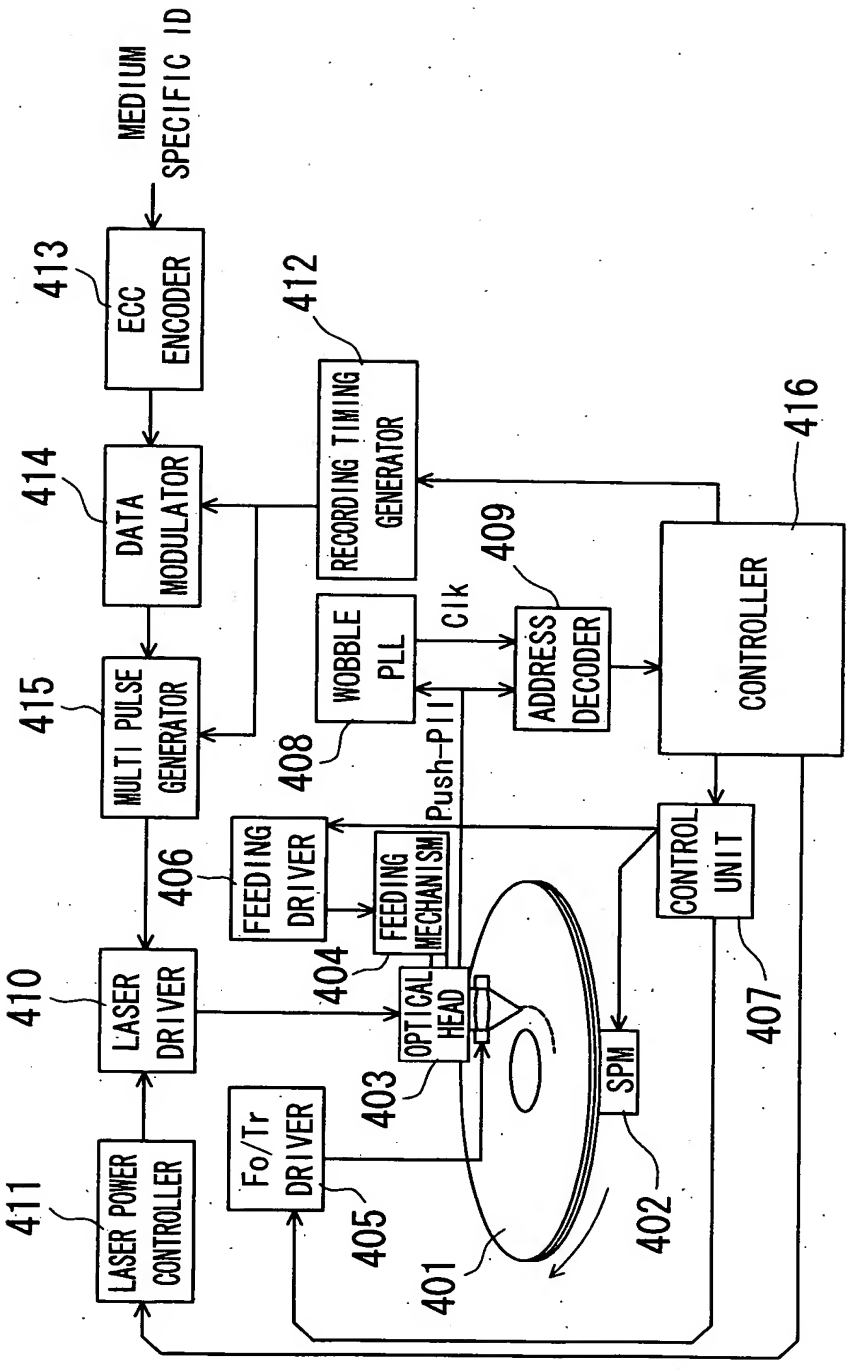

MEDIUM SPECIFIC ID
ECC ENCODER
413
DATA MODULATOR
414
MULTI PULSE GENERATOR
415
RECORDING TIMING GENERATOR
412
WOBBLE PLL
408
Clk
ADDRESS DECODER
409
CONTROLLER
416
Push-PLL
FEEDING DRIVER
406
FEEDING MECHANISM
404
CONTROL UNIT
407
LASER DRIVER
410
OPTICAL HEAD
403
SPM
402
Fo/Tr DRIVER
405
LASER POWER CONTROLLER
411
401

Fig. 5A

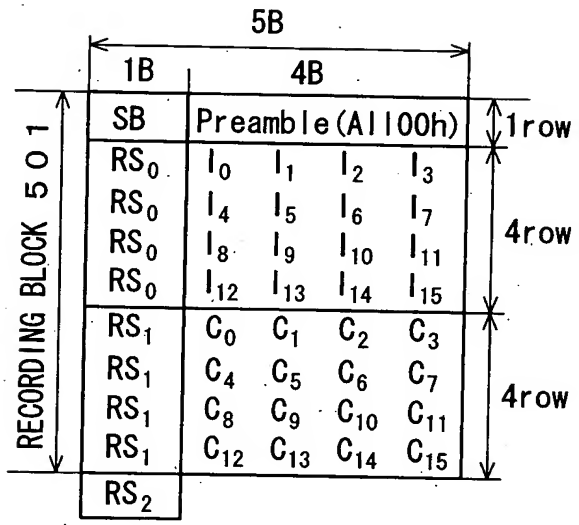

5B
1B
4B
SB
Preamble (A1100h)
1row
RS0
I0 I1 I2 I3
I4 I5 I6 I7
I8 I9 I10 I11
I12 I13 I14 I15
4row
RS1
C0 C1 C2 C3
C4 C5 C6 C7
C8 C9 C10 C11
C12 C13 C14 C15
4row
RS2
RECORDING BLOCK 501

Fig. 5B

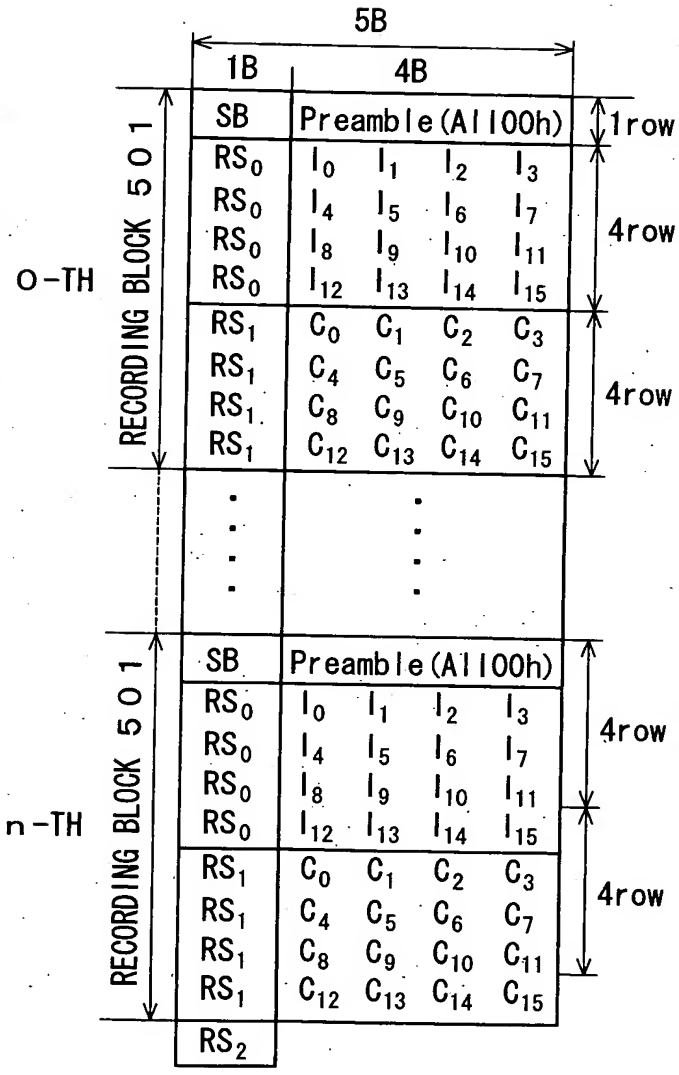

5B
1B
4B
SB
Preamble (A1100h)
1row
RS0
I0 I1 I2 I3
I4 I5 I6 I7
I8 I9 I10 I11
I12 I13 I14 I15
4row
RS1
C0 C1 C2 C3
C4 C5 C6 C7
C8 C9 C10 C11
C12 C13 C14 C15
4row
RS2
RECORDING BLOCK 501
0-TH
n-TH

Fig. 6

SYNC MARK	BIT PATTERN
SB	1001010000100001
RS_0	1001010000101001
RS_1	1001010000100011
RS_2	1001010000110001

Fig. 7

DATA BIT	MODULATED DATA BITS
0	10
1	01

Fig. 8

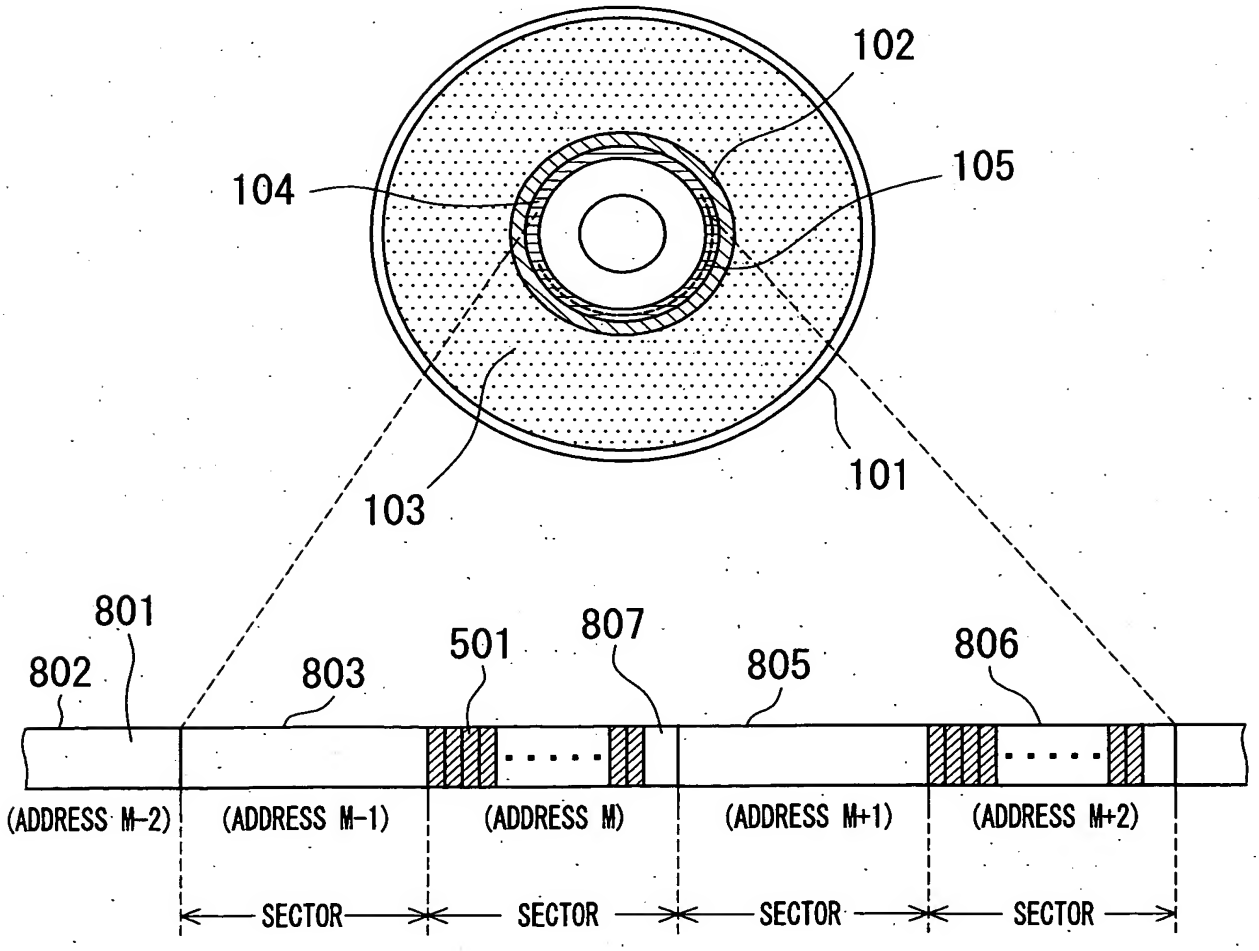


Fig. 9A
Fig. 9B
Fig. 9C

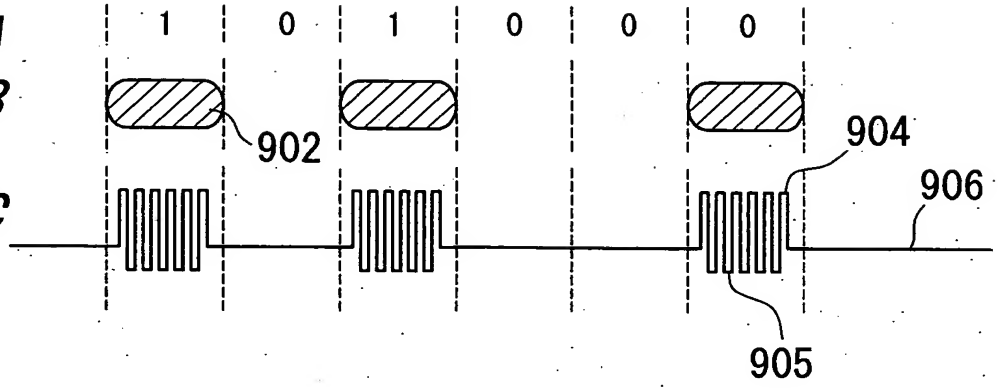


Fig. 10A

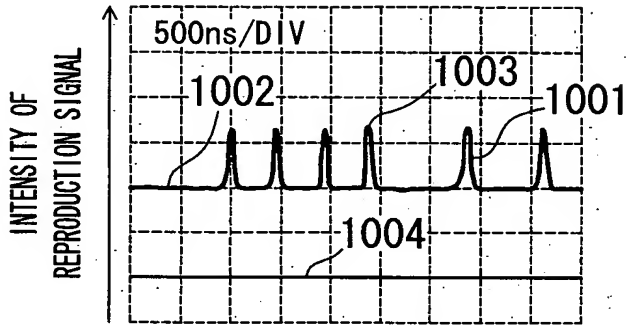


Fig. 10B

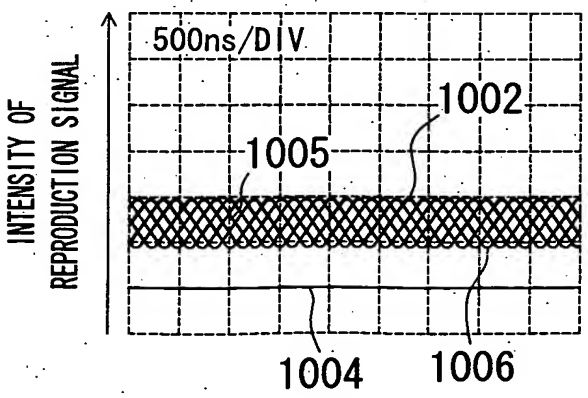


Fig. 11A

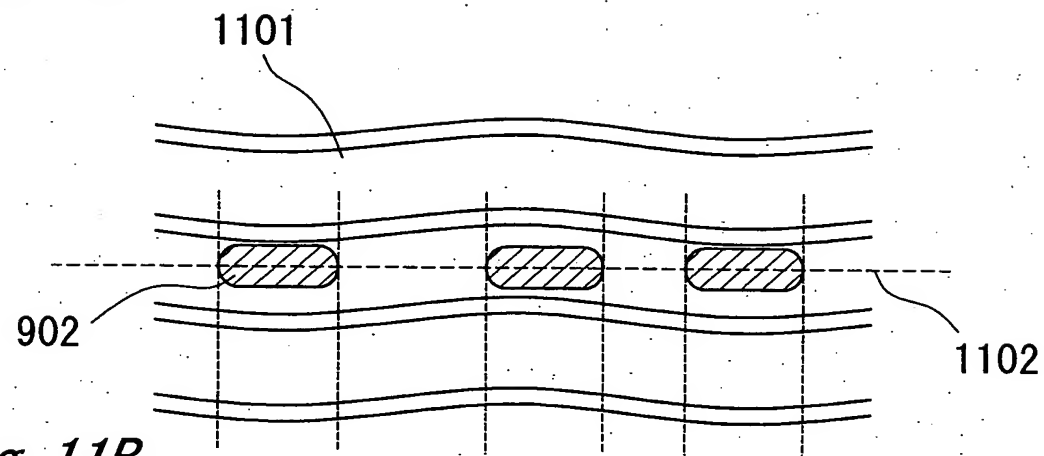


Fig. 11B

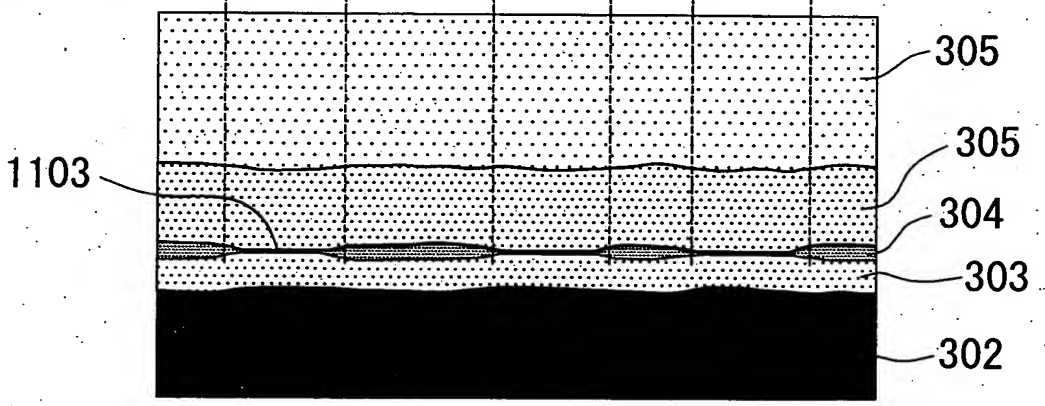


Fig. 12

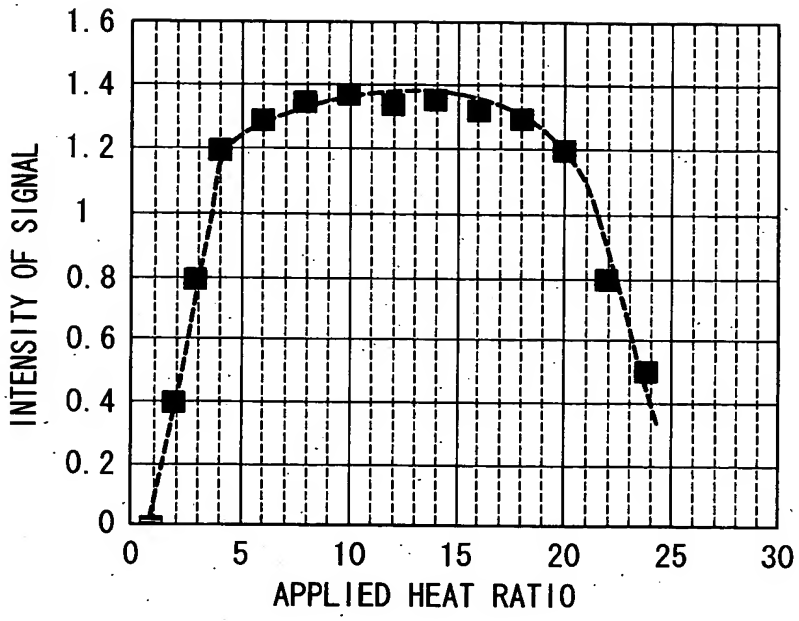

1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
INTENSITY OF SIGNAL
0
5
10
15
20
25
30
APPLIED HEAT RATIO

Fig. 13

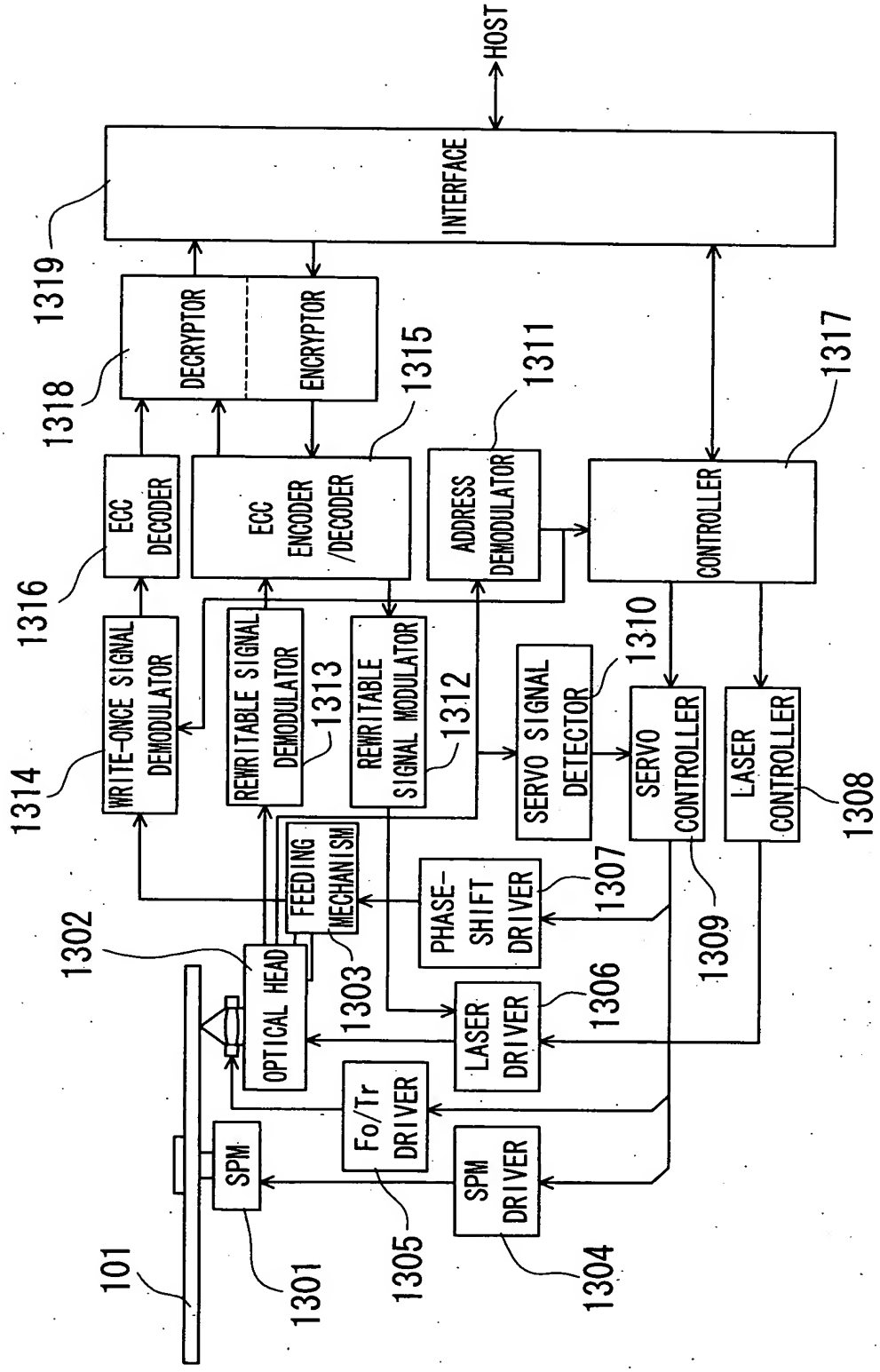

HOST
INTERFACE
1319
DECRYPTOR
ENCRYPTOR
1318
1315
1311
1317
ECC DECODER
ECC ENCODER /DECODER
ADDRESS DEMODULATOR
CONTROLLER
1316
WRITE-ONCE SIGNAL DEMODULATOR
REWRITABLE SIGNAL DEMODULATOR
1313
REWRITABLE SIGNAL MODULATOR
1312
SERVO SIGNAL DETECTOR
1310
SERVO CONTROLLER
LASER CONTROLLER
1314
1308
FEEDING MECHANISM
PHASE-SHIFT DRIVER
1307
1302
OPTICAL HEAD
1303
LASER DRIVER
1306
1309
Fo/Tr DRIVER
SPM
SPM DRIVER
101
1301
1305
1304

Fig. 14

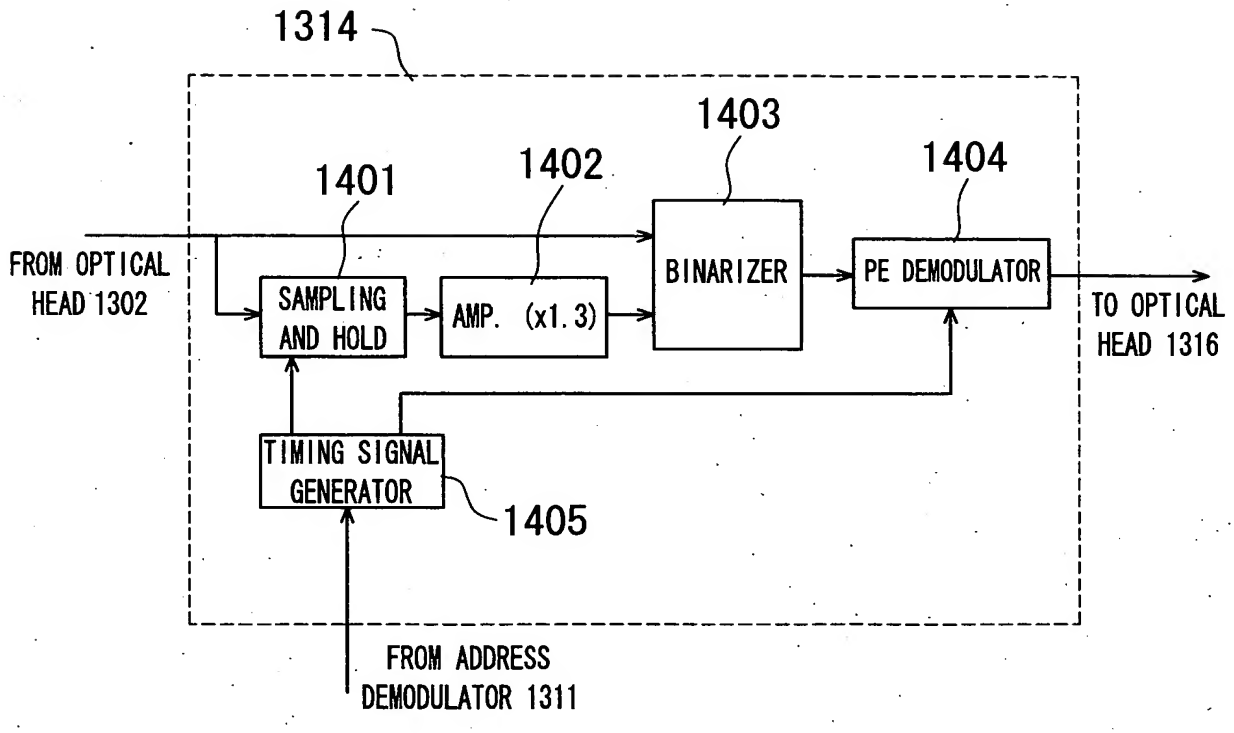

1314
1403
1401
1402
1404
FROM OPTICAL HEAD 1302
SAMPLING AND HOLD
AMP. (x1.3)
BINARIZER
PE DEMODULATOR
TO OPTICAL HEAD 1316
TIMING SIGNAL GENERATOR
1405
FROM ADDRESS DEMODULATOR 1311

Fig. 15

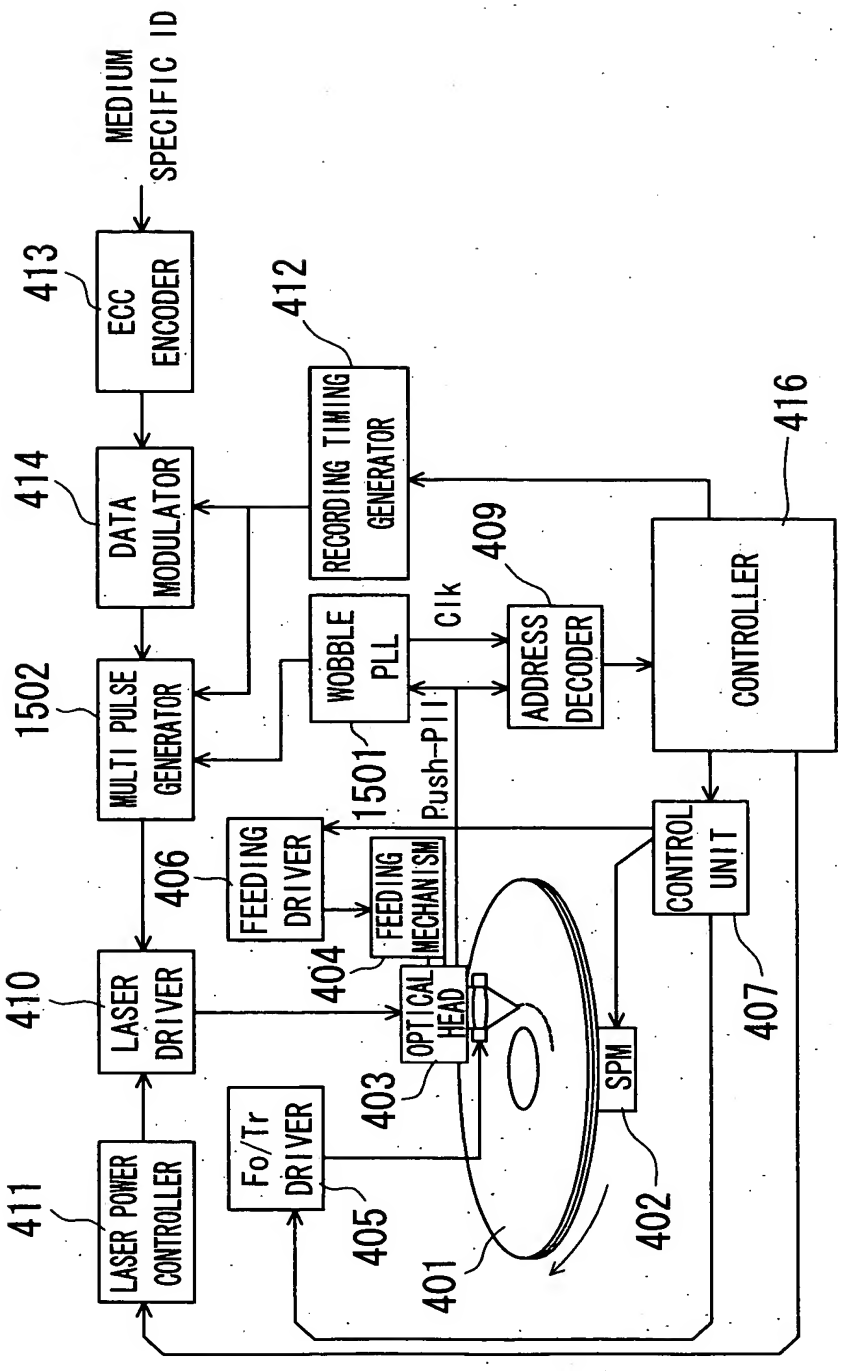

MEDIUM SPECIFIC ID
413
ECC ENCODER
412
RECORDING TIMING GENERATOR
414
DATA MODULATOR
416
CONTROLLER
409
ADDRESS DECODER
Clk
WOBBLE PLL
1502
MULTI PULSE GENERATOR
1501
Push-PLL
406
FEEDING DRIVER
FEEDING MECHANISM
CONTROL UNIT
410
LASER DRIVER
404
OPTICAL HEAD
SPM
407
411
LASER POWER CONTROLLER
Fo/Tr DRIVER
403
405
401
402

Fig. 16A

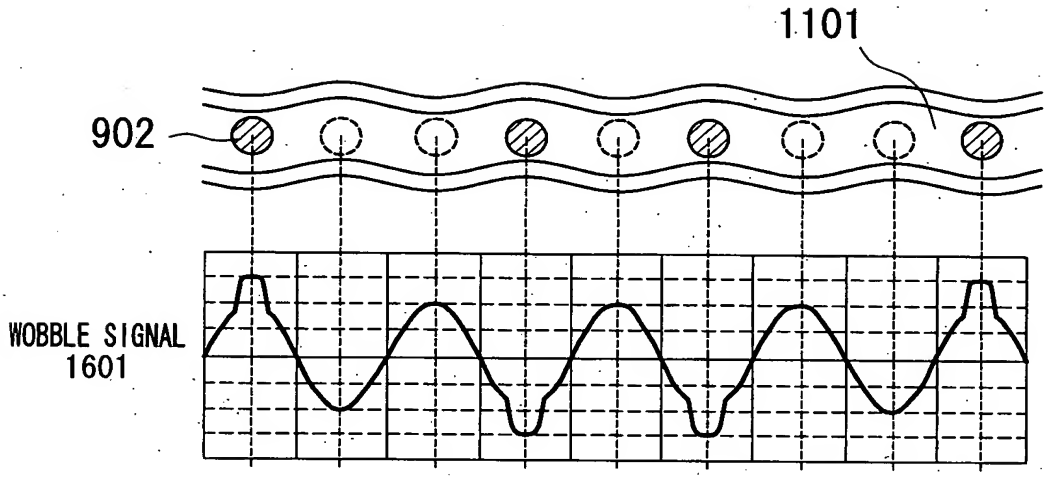


Fig. 16B

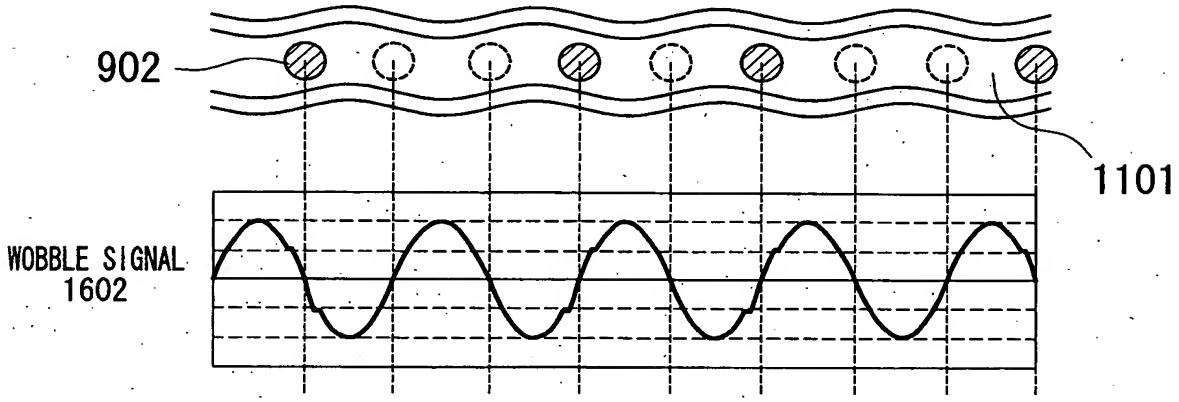


Fig. 17

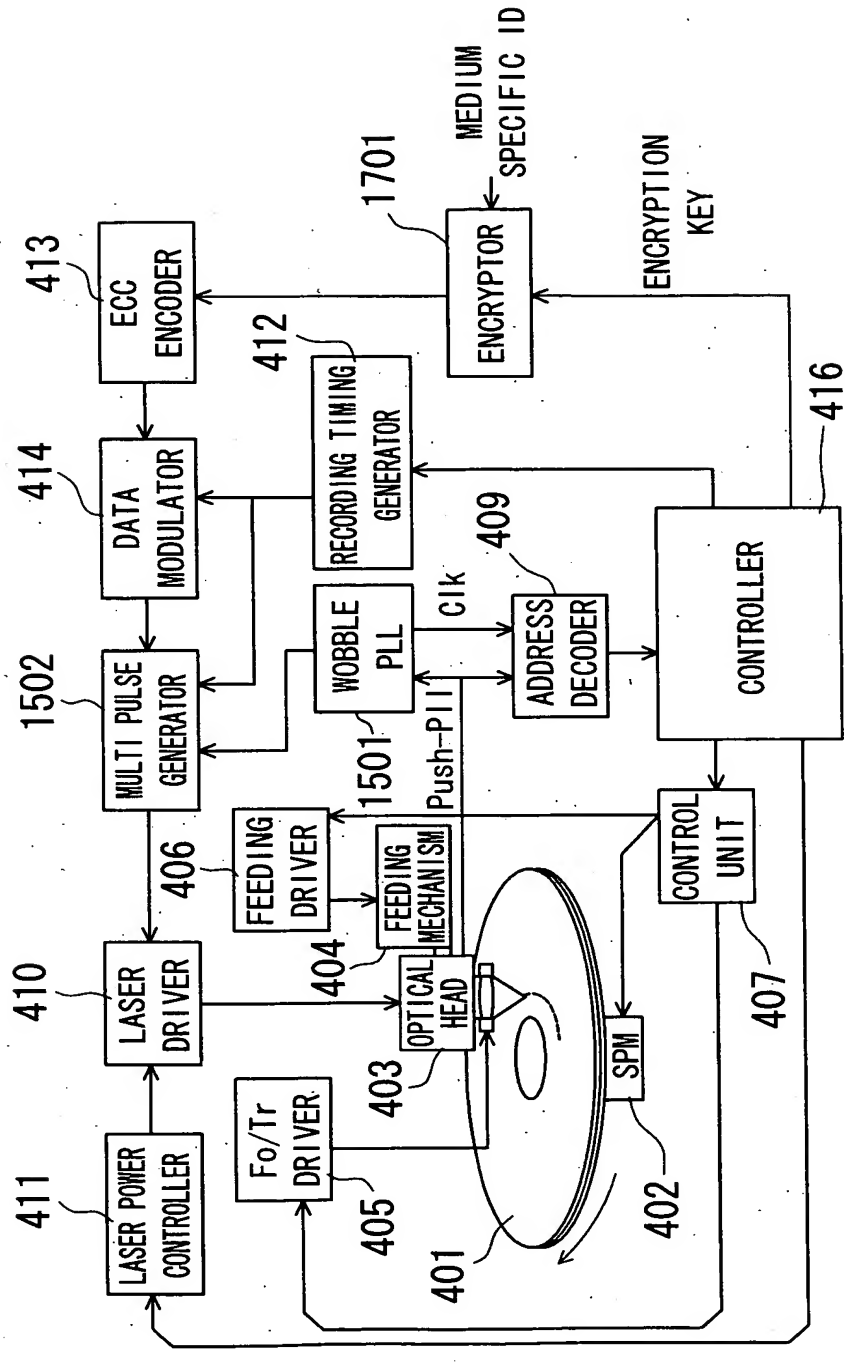

MEDIUM SPECIFIC ID
ENCRYPTION KEY
1701
ENCRYPTOR
413
ECC ENCODER
412
RECORDING TIMING GENERATOR
414
DATA MODULATOR
409
ADDRESS DECODER
CONTROLLER
416
Clk
WOBBLE PLL
1502
MULTI PULSE GENERATOR
1501
Push-PII
406
FEEDING DRIVER
FEEDING MECHANISM
CONTROL UNIT
410
LASER DRIVER
404
OPTICAL HEAD
SPM
407
411
LASER POWER CONTROLLER
Fo/Tr DRIVER
403
405
401
402

Fig. 18

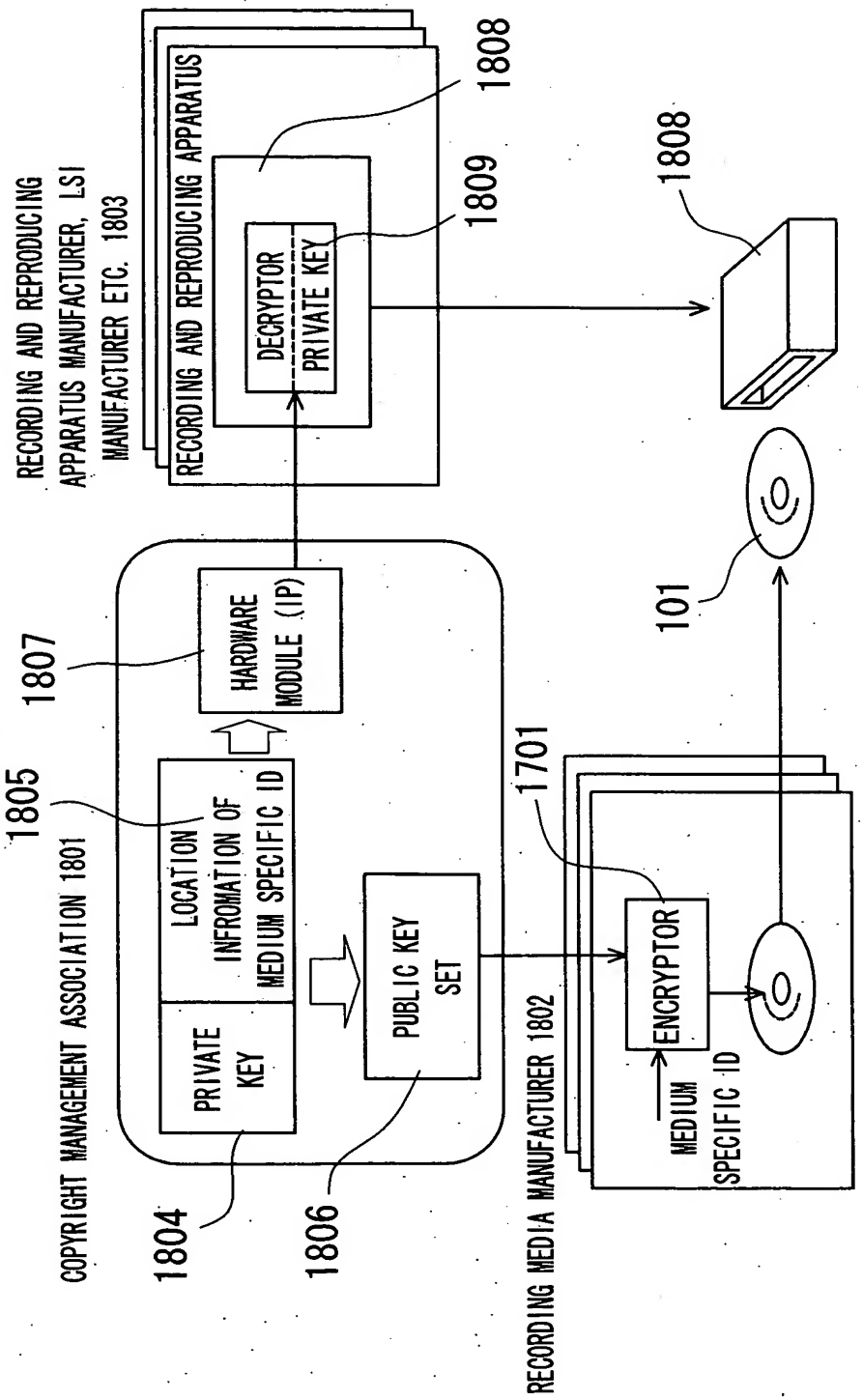

COPYRIGHT MANAGEMENT ASSOCIATION 1801
RECORDING AND REPRODUCING APPARATUS MANUFACTURER, LSI MANUFACTURER ETC. 1803
RECORDING MEDIA MANUFACTURER 1802
1804
PRIVATE KEY
1805
LOCATION INFROMATION OF MEDIUM SPECIFIC ID
1806
PUBLIC KEY SET
1807
HARDWARE MODULE (IP)
1808
RECORDING AND REPRODUCING APPARATUS
1809
DECRYPTOR
PRIVATE KEY
1808
101
1701
ENCRYPTOR
MEDIUM SPECIFIC ID

Fig. 19

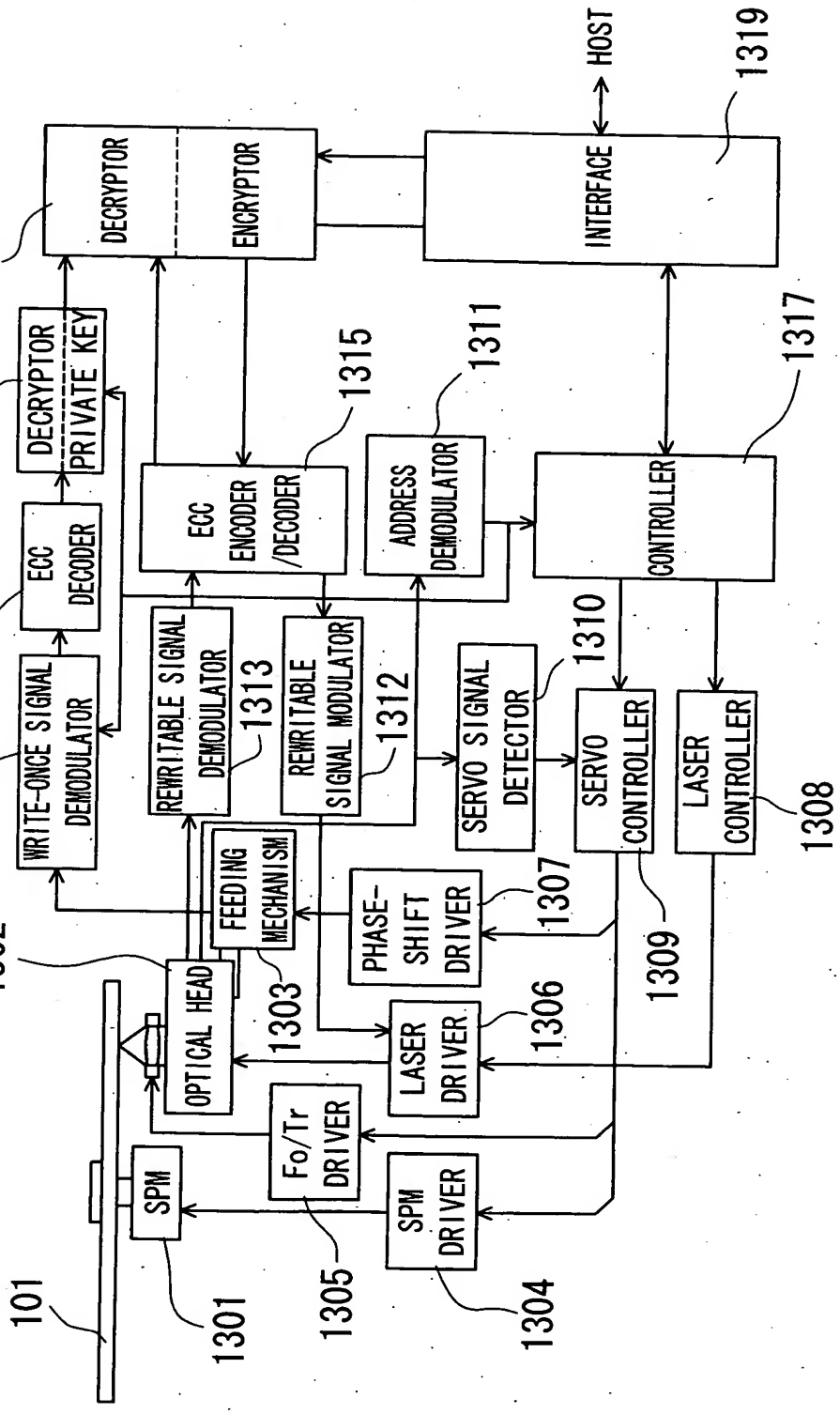

DECRYPTOR
ENCRYPTOR
INTERFACE
HOST
1319
1318
DECRYPTOR
PRIVATE KEY
1808
ECC
DECODER
1316
ECC
ENCODER
/DECODER
1315
ADDRESS
DEMODULATOR
1311
CONTROLLER
1317
WRITE-ONCE SIGNAL
DEMODULATOR
1314
REWRITABLE SIGNAL
DEMODULATOR
1313
REWRITABLE
SIGNAL MODULATOR
1312
SERVO SIGNAL
DETECTOR
1310
SERVO
CONTROLLER
LASER
CONTROLLER
1308
1309
FEEDING
MECHANISM
1302
PHASE-
SHIFT
DRIVER
1307
OPTICAL HEAD
1303
LASER
DRIVER
1306
Fo/Tr
DRIVER
SPM
DRIVER
1305
1304
SPM
1301
101

Fig. 20

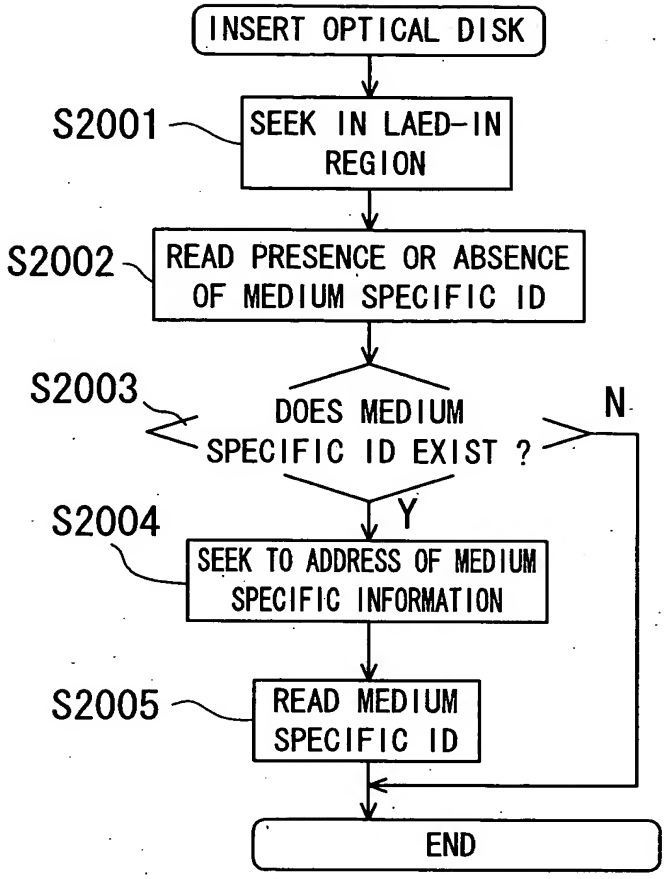

INSERT OPTICAL DISK
S2001
SEEK IN LAED-IN REGION
S2002
READ PRESENCE OR ABSENCE OF MEDIUM SPECIFIC ID
S2003
DOES MEDIUM SPECIFIC ID EXIST ?
N
Y
S2004
SEEK TO ADDRESS OF MEDIUM SPECIFIC INFORMATION
S2005
READ MEDIUM SPECIFIC ID
END

Fig. 21

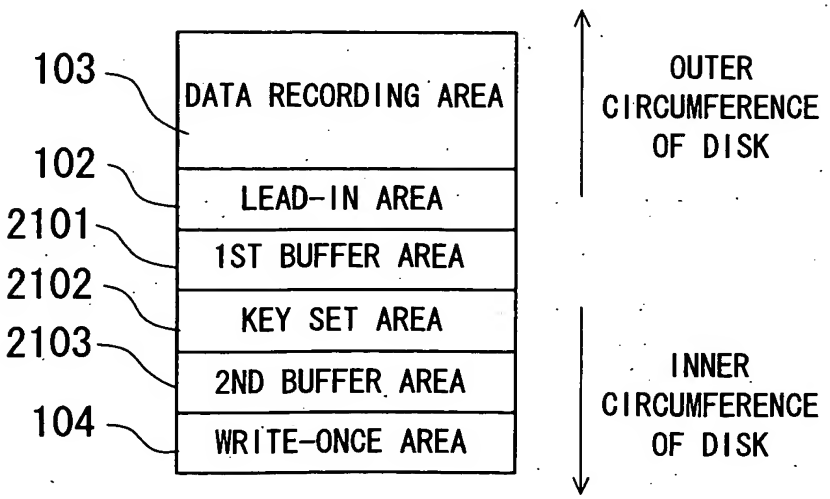
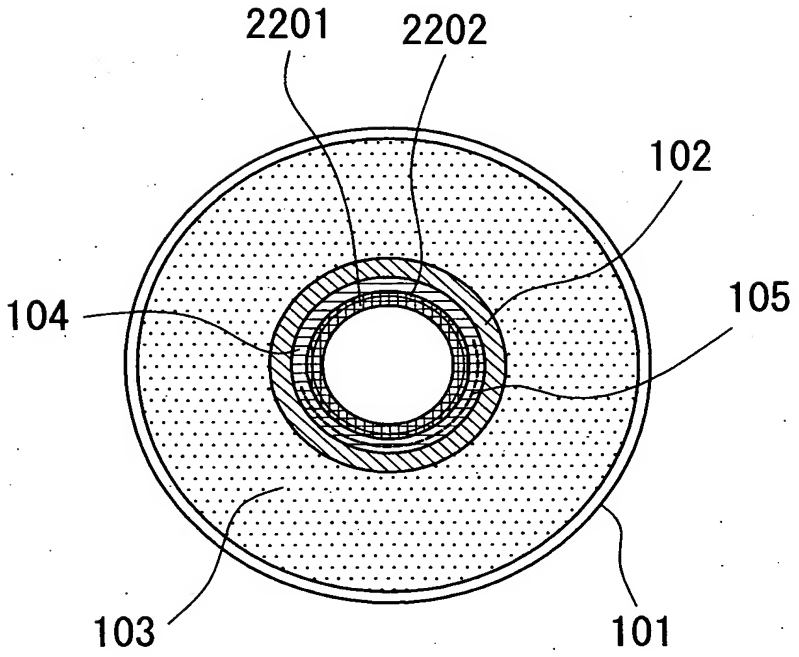

103
DATA RECORDING AREA
102
LEAD-IN AREA
2101
1ST BUFFER AREA
2102
KEY SET AREA
2103
2ND BUFFER AREA
104
WRITE-ONCE AREA
OUTER CIRCUMFERENCE OF DISK
INNER CIRCUMFERENCE OF DISK

Fig. 22



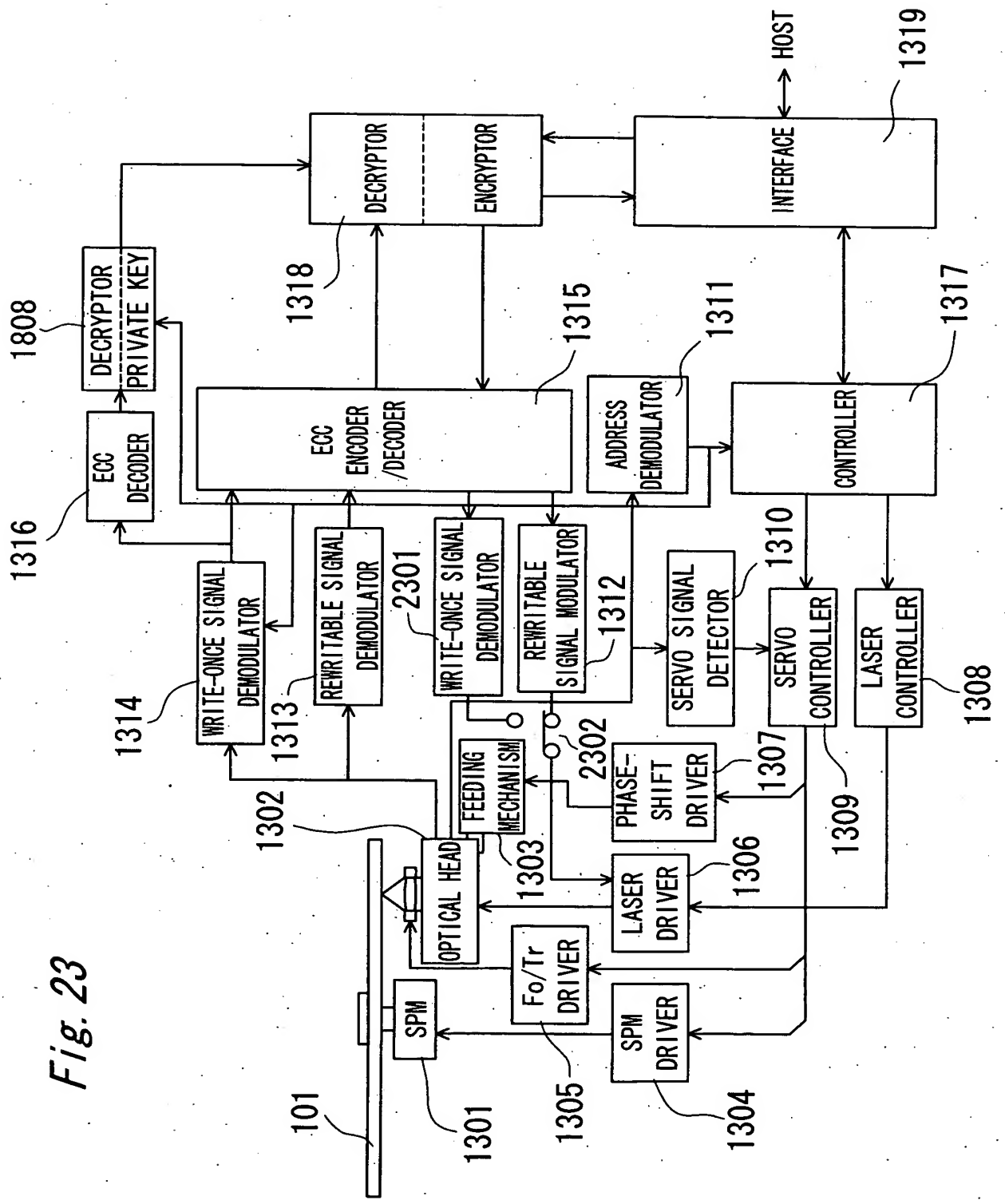

HOST
1319
INTERFACE
DECRYPTOR
ENCRYPTOR
1318
1808
DECRYPTOR
PRIVATE KEY
1315
1311
1317
ECC
ENCODER
/DECODER
ADDRESS
DEMODULATOR
CONTROLLER
1316
ECC
DECODER
2301
1310
WRITE-ONCE SIGNAL
DEMODULATOR
REWRITABLE SIGNAL
DEMODULATOR
WRITE-ONCE SIGNAL
DEMODULATOR
REWRITABLE
SIGNAL MODULATOR
SERVO SIGNAL
DETECTOR
SERVO
CONTROLLER
LASER
CONTROLLER
1314
1313
1312
1308
2302
1307
FEEDING
MECHANISM
PHASE-
SHIFT
DRIVER
1302
1303
1309
OPTICAL HEAD
LASER
DRIVER
1306
Fo/Tr
DRIVER
SPM
SPM
DRIVER
101
1301
1305
1304

Fig. 23

Fig. 24

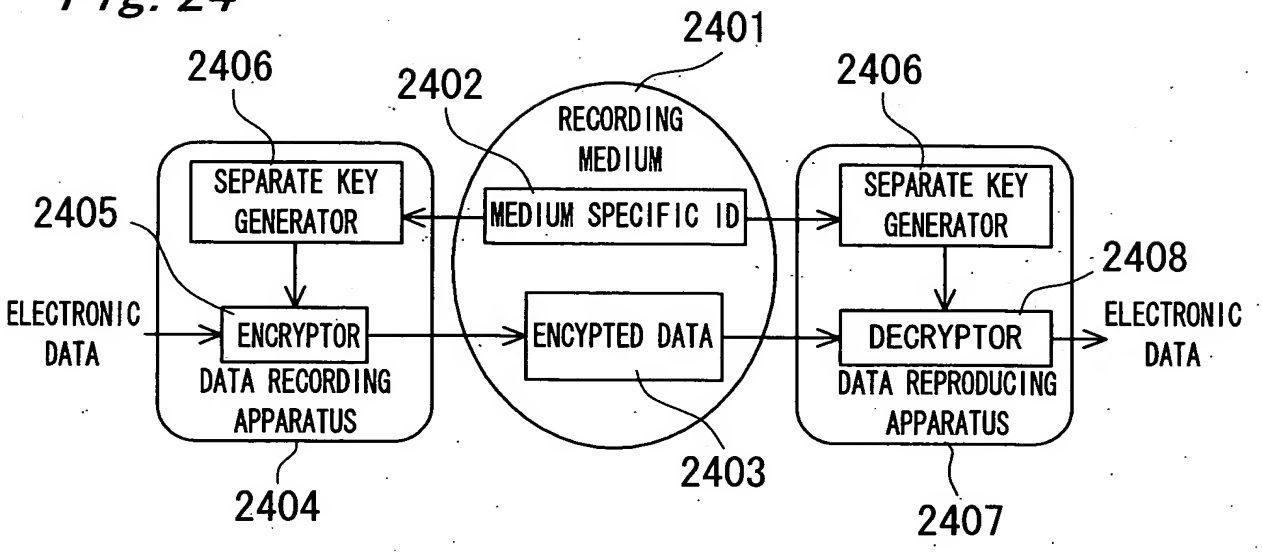


Fig. 25

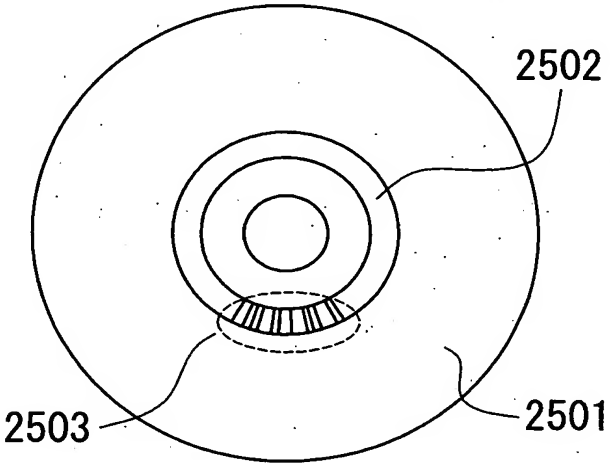


Fig. 26

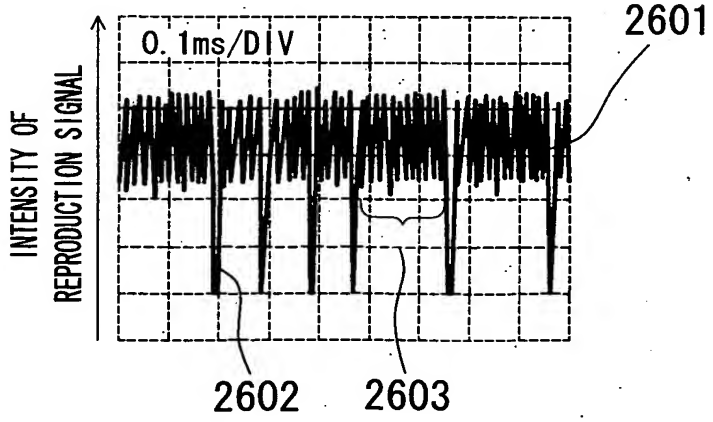


Fig. 27